CLAIMS:

1. A surface roughening method, comprising:

moving a cutting tool having a cutting head along a longitudinal axis of an article, wherein the cutting head comprises a radial cutting blade having a first cutting edge and a second cutting edge; and

rotating the cutting head about the longitudinal axis of the article such that the first cutting edge of the cutting blade forms a first machined pattern of peaks and valleys on a surface of the article,

wherein the second cutting edge of the cutting blade removes at least a portion of the peaks in the first machined pattern to form roughened fracture surfaces in a second machined pattern on the surface of the article, and

wherein the second machined pattern comprises an arrangement of grooves corresponding to the valleys in the first pattern and separated by lands corresponding to the roughened fracture surfaces.

2. The method of claim 1, wherein an entire cross section of each peak in the first pattern is fractured.

3. The method of claim 1, wherein each of the grooves in the second machined pattern is symmetrical.

4. The method of claim 1, wherein each of the grooves in the second machined pattern defines a v-shape.

5. The method of claim 1, wherein a trailing edge of the cutting head roughens the surface of each land.

6. The method of claim 1, wherein the article defines a cylindrical body.

7. The method of claim 6, wherein the first cutting edge cuts an interior surface of the cylindrical body into the first machined pattern comprising a first substantially helical pattern defined by the alternating peaks and valleys, and wherein the second cutting edge creates the roughened fracture surfaces on the interior surface by applying stress on the peaks to fracture at least a portion of the peaks to form the second machined pattern comprising a second substantially helical pattern defined by lands corresponding to the roughened fracture surfaces, separated by grooves corresponding to the valleys.

8. The method of claim 1, wherein the article comprises a nonferrous metal.

9. The method of claim 1, further comprising applying a coating overlaying the first and second machined patterns on the surface of the article.

10. The method of claim 9, wherein applying the coating comprises at least one of chemical vapor deposition, plasma deposition, thermal spray coating, or fluid spray coating.

11. The method of claim 9, wherein the coating comprises an abrasion resistant material.

12. The method of claim 9, wherein the coating comprises at least one of a ceramic material or a ferrous metal.

13. The method of claim 12, wherein the ceramic material comprises one or more of silicon nitride, silicon carbide, aluminum oxide, silicon dioxide, and titanium nitride.

14. The method of claim 12, wherein the ferrous metal comprises one or more of titanium, tungsten, cobalt, nickel, iron, and aluminum.

15. A surface roughening system, comprising:

means for roughening a surface comprising first cutting edge means for cutting a first pattern of peaks and valleys into the surface, and a second cutting edge means for fracturing the peaks;

means for moving the means for roughening in an axial direction relative to a longitudinal axis of the surface; and

means for rotating the means for roughening in a radial direction relative to the surface;

wherein rotating the means for roughening while feeding the means for roughening relative to the surface creates a roughened surface comprising a second pattern, wherein the second patterns comprises a plurality of lands created by fracturing the peaks, each land positioned adjacent to a groove corresponding to a respective one of the valleys in the first pattern.

16. A cutting tool comprising:

a rotary cutting head comprising a body having at least one cutting blade extending radially outward therefrom, wherein the cutting blade comprises a body, a first planar surface and a second planar surface,

wherein the first planar surface is shaped to cut a first pattern of peaks and valleys into a surface of an article, and

wherein the second planar surface is shaped to fracture the peaks in the first pattern to create a second pattern comprising lands corresponding to the fractured peaks, and wherein the fractured peaks are separated by grooves corresponding to the valleys in the first pattern.

17. The cutting tool of claim 16, wherein the first planar surface of the cutting blade extends a first radial distance from a center of the body of the rotary cutting head, and the second planar surface extends a second radial distance from the center of the body of the rotary cutting head, and wherein the first distance is greater than the second distance.

18. The cutting tool of claim 17, wherein the first planar surface of the cutting blade is oriented at an obtuse angle below a plane of the body of the rotary cutting head.

19. The cutting tool of claim 16, wherein the first planar surface comprises a first rake surface substantially normal thereto, and the second planar surface comprises a second rake surface substantially normal thereto, and wherein the first rake surface and the second rake surface are the same surface.

20. The cutting tool of claim 16, wherein the first rake surface and the second rake surface are different surfaces.

21. The cutting tool of claim 16, wherein the second planar surface comprises an end face substantially normal thereto, and wherein the end face is roughened.

22. The cutting tool of claim 16, wherein the first cutting edge is shaped to form a symmetrical groove with a cross sectional v-shape.

23. The cutting tool of claim 16, wherein the rotary cutting head comprises at least one of a metal, a ceramic material, or diamond.

24. The cutting tool of claim 23, wherein the cutting blade comprises at least one metal selected from titanium, tungsten, cobalt, nickel, iron, or aluminum.

25. The cutting tool of claim 23, wherein the cutting blade comprises at least one ceramic material selected from comprises one or more of silicon nitride, silicon carbide, aluminum oxide, silicon dioxide, or titanium nitride.

26. A cylindrical body having a machine roughened surface, wherein the roughened surface comprises a substantially helical pattern of grooves separated by lands corresponding to substantially uniform roughened surface regions, wherein the cross section of the grooves is substantially symmetrical and each groove has a v-shape.

27. The body of claim 26, wherein the machine roughened surface is an interior surface of the cylindrical body.

28. The body of claim 26, wherein the cylindrical body comprises a nonferrous metal.

29. The body of claim 28, further comprising a coating applied to the machine roughened surface.

30. The body of claim 29, wherein the coating comprises an abrasion resistant material.

31. The body of claim 29, wherein the coating comprises at least one of a ceramic material or a ferrous metal.

32. The body of claim 31, wherein the ceramic material comprises one or more of silicon nitride, silicon carbide, aluminum oxide, silicon dioxide, and titanium nitride.

33. The body of claim 31, wherein the ferrous metal comprises one or more of titanium, tungsten, cobalt, nickel, iron, and aluminum.

34. The body of claim 26, wherein the machine roughened surface comprises an inner surface of a cylindrical bore in a cylinder block of an internal combustion engine.

35. The body of claim 34, further comprising a coating applied to the inner surface overlaying the lands and the grooves.

36. The body of claim 35 wherein the coating comprises an abrasion resistant material.

37. The body of claim 35, wherein the coating comprises at least one of a ceramic material or a ferrous metal.

38. The body of claim 37, wherein the ceramic material comprises one or more of silicon nitride, silicon carbide, aluminum oxide, silicon dioxide, and titanium nitride.

39. The body of claim 37, wherein the ferrous metal comprises one or more of titanium, tungsten, cobalt, nickel, iron, and aluminum.

40. The body of claim 26, wherein the machine roughened surface comprises an outer surface of a cylindrical liner inserted within a cylinder bore of a cylinder block of an internal combustion engine.

41. The body of claim 40, wherein the cylindrical liner comprises an outer peripheral surface that comprises the machine roughened surface by forming thereon the pattern of lands and grooves, and joined to an inner surface of the cylinder bore.